

SERVICE MANUAL

NAD

SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations marked "⚠".
 2. Return lead dress to original position and re-install protective covers.
 3. Before returning to customer, test for shock hazard; use either method A or B:
- A. Leakage test "cold":
1. Unplug the AC cord; turn power switch ON.
 2. Connect one lead of High Voltage Insulation Tester to both prongs of the AC plug.
 3. Touch other lead to all exposed metal parts.
 4. Impedance measurement must be 0.3-5.0 Megohms.
- B. Leakage test, "live":
1. Plug unit directly into the AC outlet; do not use isolation transformer.
 2. Connect one lead of the Leakage Current Tester to earth ground.
 3. Touch other lead to all exposed metal parts.
 4. Leakage measurement must be less than 0.5 milliamps.

AV316

AMPLIFIER

AV316

AMPLIFIER

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2. Return lead dress to original position, and re-install protective covers.
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A. Leakage test, "cold":

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3. Touch other lead to all exposed metal parts.
4. Impedance measurement must be 0.3 - 5.0 Megohms.

B. Leakage test, "live":

1. Plug unit directly into AC outlet; do not use isolation transformer.
2. Connect one lead of Leakage Current Tester to earth ground.
3. Touch other lead to all exposed metal parts.
4. Leakage measurement must be less than 0.5 milliamps.

4. Replacing the fuses



This symbol located near the fuse indicates that the fuse used is fast

operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.



Ce symbole indique que le fusible utilise est a rapide.

Pour une protection permanents, n'utiliser que des fusibles de meme type.

Ce dernier est indique la qu le present symbol est appose.

For continued protection against fire hazard, replace with same type fuse.

For fuse rating refer to the marking adjacent to the symbol.

5. To Initialize the unit

This device employs a microprocessor to perform various functions and operations.

If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.

To perform a reset, please follow the procedure below.

1. Press and hold down the CD button, then press the POWER button.
2. Take the power supply cord from the socket while "TEST-" is displayed.
3. After "clear" is displayed, the preset memory and each mode stored in then memory, such as surround, are initialized and will return to the factory settings.

Circuit No.	Part No.	Description
F901	252164Y	5A-UL/T-237, Primary <AH>
F902	252076	3.15A-SE-EAK, Primary <C>
F903	252075	2.5A-SE-EAK, Primary <C>
F921	252156Y	1A-UL/T-237, Secondary <AH>
	252070	1A-SE-EAK, Secondary <C>
F922	252156Y	1A-UL/T-237, Secondary <AH>
	252070	1A-SE-EAK, Secondary <C>

6. Safety-check out

(Only U.S.A. model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel. Specifications : 3.3Mohm \pm 10% at 500V.

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SPECIFICATIONS

AMPLIFIER SECTION

STEREO MODE:

Continuous Power

into 8 Ω 75W

into 4 Ω 75W

Dynamic Power:

into 8 Ω 100W

into 4 Ω 170W

(Min. RMS power per channel, 20Hz-20kHz, both channels driven, with no more than rated distortion)

Front L/R and Center Channels

50W into 8 Ω

Rear Channels

15W per channel into 8 Ω , 1kHz: 0.3% THD

THD 20Hz-20kHz

0.08% (Front) (stereo mode)

IM distortion

0.08% (Front) (stereo mode)

Damping factor

60 at 8 Ω (Front)

Input sensitivity and Impedance:

Phono: 2.5mV, 47k ohms

Line: 150mV, 18k ohms

Video: 1Vp-p, 75 ohms

Output level and Impedance

Tape 1,2 Line Out: 150mV, 2.2k ohms

Video 2 Line Out: 150mV, 2.2k ohms

Pre Out: 1V, 2.2k ohms (Subwoofer)

Video: 1Vp-p, 75 ohms (Video 2, Monitor)

Phono Overload 1kHz, 0.5% THD

120mV RMS

Frequency response 5Hz to 50kHz

± 0.8 dB

RIAA Deviation 20Hz-20kHz

± 0.8 dB

Tone control

Bass: ± 8 dB at 100Hz

Treble: ± 8 dB at 10kHz

Signal/Noise ratio

Phono 80dB (IHF A, 5mV input)

CD/Tape: 100dB (IHF A)

Muting:

-40dB

Remote Control

Power, Master Volume Up/Down, Mute, Sleep, Surround Mode, Delay Time, Test Tone, Center Volume Up/Down,

Rear Volume, Up/Down, Input Selector (CD, Phono, Tuner, Tape 1, Tape 2, Video 1, Video 2)

Deck A/B, (Play, Reverse Play, Stop, Record/Pause, Fast Forward, Rewind)

CD: (Play, Pause, Stop, Disc, Skip Forward/Back)

Tuner: (Bank, Preset Up/Down)

Physical Specification

Dimensions in mm (WxHxD)

435 x 145 x 330

Net weight

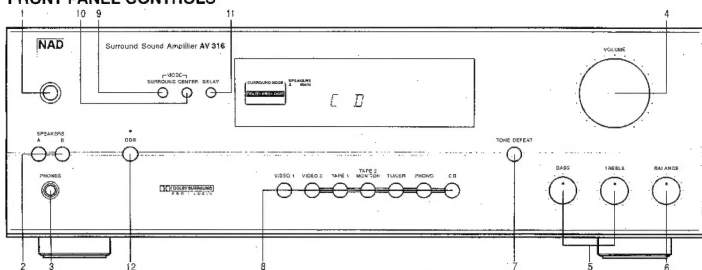
9.6kg

Shipping weight

10.7kg

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

FRONT PANEL CONTROLS



- | | | |
|---------------------|--|-------------|
| 1. POWER | 5. BASS & TREBLE CONTROLS | 9. SURROUND |
| 2. SPEAKERS A B | 6. BALANCE | 10. CENTER |
| 3. HEADPHONE SOCKET | 7. TONE DEFEAT | 11. DELAY |
| 4. VOLUME | 8. VIDEO 1, VIDEO 2, TAPE 1, TAPE 2 MONITOR, TUNER, CD | 12. CDR |

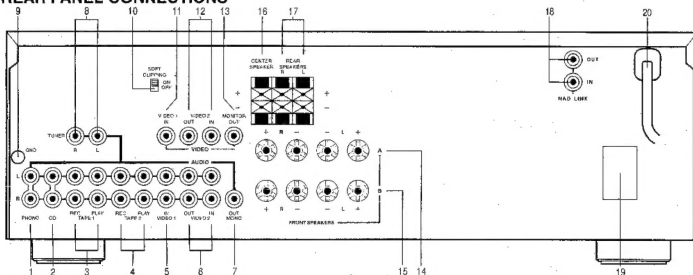


The lightning flash with arrowhead, within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



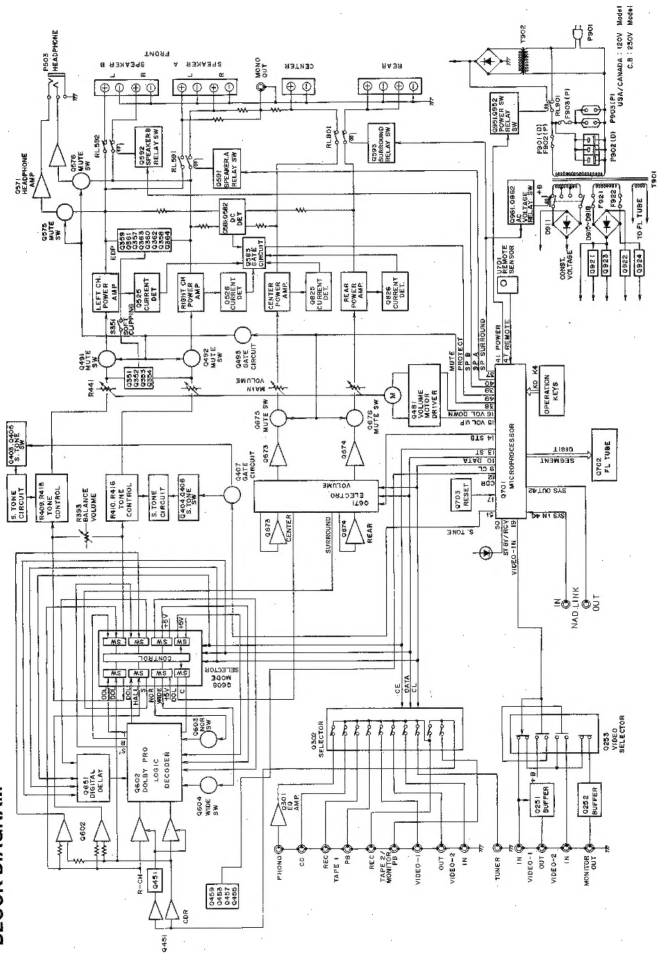
The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

REAR PANEL CONNECTIONS

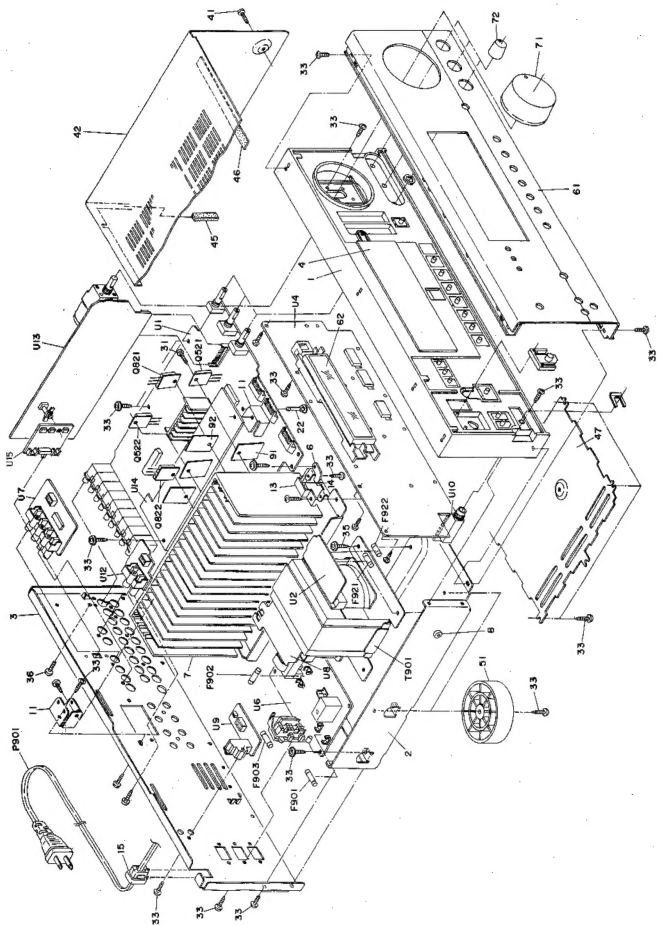


- | | | |
|----------------|--------------------------|--|
| 1. PHONO INPUT | 8. TUNER | 15. FRONT SPEAKERS B |
| 2. CD INPUT | 9. GROUND TERMINAL | 16. CENTER SPEAKER |
| 3. TAPE 1 | 10. SOFT CLIPPING | 17. REAR SPEAKERS |
| 4. TAPE 2 | 11. VIDEO 1 | 18. NAD-LINK IN OUT |
| 5. VIDEO 1 | 12. VIDEO 2 | 19. AC OUTLETS (EUROPEAN AND US VERSIONS ONLY) |
| 6. VIDEO 2 | 13. MONITOR VIDEO OUTPUT | 20. AC POWER CORD CONNECTOR |
| 7. MONO OUT | 14. FRONT SPEAKERS A | |

BLOCK DIAGRAM



EXPLODED VIEW



PARTS LIST

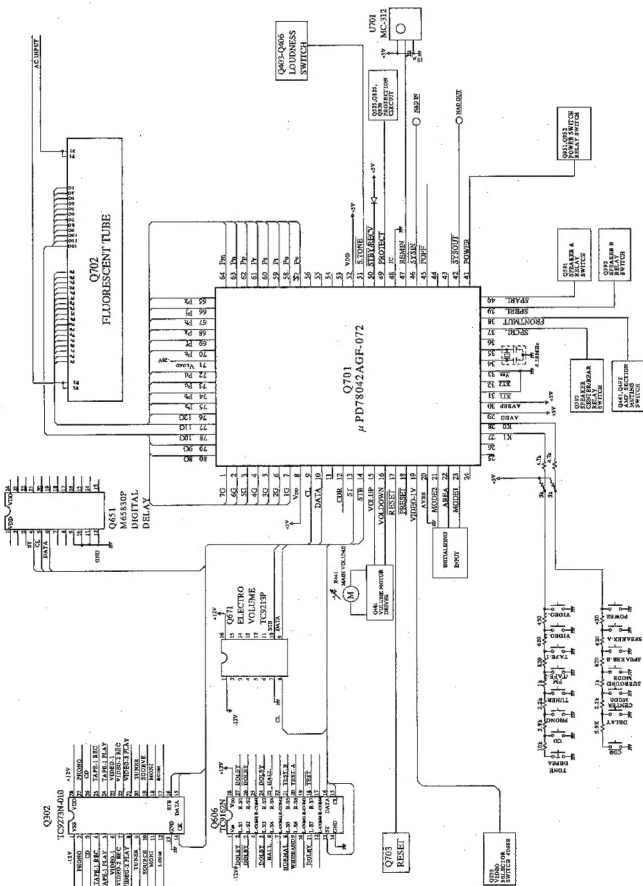
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	2710872Y	Front bracket	P504	2560064	NANIWA 3P14	U2	1A600597-4Y	NAETC-5397-4, Power secondary supply circuit pe board ass'y <AH>
2	2710298AY	Chassis	P901	233192HT or	AS-UC-6418 or		1A600597-4AY	NAETC-5397-4A, Power secondary supply circuit pe board ass'y <C>
3	2712096AY	Rear panel <AH>		23194NARY	AS-LUC-2, Power supply cord <AH>	U4	1A600567-1Y	NADIS-5467-1, Display circuit pe board ass'y <AH>
	2712097AY	Rear panel <C>		253092-1A	AS-CBE-2, Power supply cord <C>	U6	1A600569-1Y	NAPS-5469-1, Power primary supply circuit pe board ass'y <AH>
6	2712104AY	Rear panel -<B1>		23198HT	AS-BS, Power supply cord 		1A600569-1AY	NAPS-5469-1A, Power primary supply circuit pe board ass'y <C>
7	2713072Y	Bracket H		23197HT	AS-SAA, Power supply cord <B1>		1A600570-1Y	NAETC-5470-1, Video circuit pe board ass'y -<B1>
	2716033BY	Radiator <AH>	P901	23216Y	3A-UJT-237, Primary fuse <AH>	U7	1A600571-1Y	NAETC-5471-1, Primary circuit pe board ass'y
	2716623Y	Radiator <C>	P902	252076	31SA-SE-EAK, Primary fuse <C>	U8	1A600572-1Y	NAETC-5472-1, NAP LINK terminal pe board ass'y
12	2714160AY	Resistor H	P903	252075	23A-SE-EAK, Primary fuse <C>	U9	1A600573-1Y	NAETC-5473-1, Headphone terminal pe board ass'y <AH>
13	2714160AY	Resistor H, H2	P921	252156Y	1A-UJT-237, Secondary fuse <AH>	U10	1A600573-1AY	NAETC-5473-1A, Headphone terminal pe board ass'y <C>
15	2730730	Resistor	P922	252156Y	1A-SE-EAK, Secondary fuse <C>		1A600575-1AY	NAETC-5475-1A, Headphone terminal pe board ass'y <C>
16	88009	Cord backing, #2271		252070Y	1A-UJT-237, Secondary fuse <AH>	U12	1A600575-1Y	NAETC-5475-1, Tuner terminal pe board ass'y <AH>
22	27190524	HGLS-14RF, Holder	Q521,522	230283 or	1A-SE-EAK, Secondary fuse <C>	U13	1A600575-1AY	NAETC-5475-1A, Tuner terminal pe board ass'y <C>
23	27190652	Holder	Z201483	2301483	25C3200-O or	U14	1A600576-1Y	NAAF-5476-1, Surround circuit pe board ass'y
31	80143	3MSFW, SW148(B/C), Semi screw	Q522,524	2302813 or	25A193-O or		1A600577-1Y	NAAF-5477-1, Center and rear amplifier circuit pe board ass'y <AH>
33	83130088	3T7B-43, Self-tapping screw	Z201473	2301473	25A1102-O or		1A600577-1AY	NAAF-5477-1A, Center and rear amplifier circuit pe board ass'y <C>
35	83040089	4TTC-4C(B/C), Self-tapping screw	Q821,822	2301943 or	25C3197-O or	U15	1A600578-1Y	NAETC-5478-1, BDP circuit pe board ass'y
41	836430088	3T7B-48(B/C), Self-tapping screw		2302353 or	25C467-O or			
42	281434862Y	Top cover	Z202503 or	2302503 or	25C3181N-O or			
44	28143306Y	Cushion, 45x530	Z202254 or	2302254 or	25C467-Y or			
45	28143311Y	Cushion, 48x10x20	Z202256	2302256	25C467-P, Power amplifier transistor			
46	281405546Y	Cushion, 40.5x10x390	Q822,824	2303033 or	25A1940-O or			
47	27170304AY	Button board		2302243 or	25A1694-O or			
51	27173305Y	Leg ass'y	Z202493 or	2302493 or	25A164N-O or			
61	1A600121Y	Front panel ass'y	Z202244 or	2302244 or	25A1694-Y or			
62	2813718Y	Clear plate	Z202246	2302246	25A1694-P, Power amplifier transistor			
72	2832133	Knob, volume	R597	4000146	PTH9MBCZ22, Potentiometer			
73	28325004AY	Knob, tone	T901	230118Y	NPT-124SD, Power transformer <AH>			
73	28325141Y	Knob, power		230119Y	NPT-124SP, Power transformer <C>			
91	222021	Isolation sheet, Q521-Q524	U1	1A600596-4Y	NAAR-5396-4, Main circuit pe board ass'y <AH>			
92	260208	Wire tie			NAAR-5396-4A, Main circuit pe board ass'y <C>			
93	223023	Isolation sheet, Q521-Q524						
	28175211Y	Isolation plate <C>						

NOTE: <AH>: U.S.A., Canadian model only
: U.K. model only
<B1>: Australian model only
<C>: European model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CAUTION: Replacement for transistor of mark "☆", if necessary, must be made from the same box group (HFE) as the original type.

MICROPROCESSOR-CONNECTION DIAGRAM



MICROPROCESSOR TERMINAL DESCRIPTION

Q701: # PD78042AGF-072

Pin No.	Function	I/O	Description
17	7G7G	O	Grid control output pin. On at the high level.
8	VDD		Power supply pin (+5V)
9	CL	O	Clock output pin. Connect to the terminals CK of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay Q651.
10	DATA	O	Data output pin. Connect to the terminals DATA of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay Q651.
11	PLL		Not used.
12	CDR	O	Chip enable output pin for Q459.
13	ST	O	Chip enable output pin. Connect to the terminals ST of function switch Q302, surround mode switch Q606, electro volume Q671 and digital delay Q651.
14	STB	O	Chip enable output pin for electro volume Q671.
15	VOLUP	O	Volume control output pin. Volume up
16	VOLDOWN	O	Volume control output pin. Volume down (Refer table 1.)
17	RESET	I	System reset input pin
18	PRESET		Not used.
19	VIDEO IN	O	Video input selector output pin.
20	AVSS		Ground pin of A/D converter
21	MODE 2	I	Initializing input of operation mode
22	AREA	I	Initializing input of area region
23	MODE 1	I	Initializing input of operation mode
24	K4	I	Not used.
25	K3	I	Not used.
26	K2	I	Not used.
27	K1	I	Operation key connection pin
28	K0	I	Operation key connection pin
29	AVDD		Analogue power supply of A/D converter
30	AVREF		Reference voltage input pin of A/D converter
31	XT1		Crystal connection pin for sub system clock resonator
32	XT2		Not used.
33	VSS		Ground pin
34	X1		Resonator connection terminal for main system clock
35	X2		Connect the ceramic resonator 4.19MHz.
36	TUMUT	O	Not used.
37	SPCRL	O	Relay control pin for speaker.
38	FRONT MUT	O	Muting output pin for amplifier section
39	SPBRL	O	Relay control pin for speaker.
40	SPARL	O	Relay control pin for speaker
41	PW	O	Power source control output pin
42	SYSOUT	O	System code output pin. (NAD OUT)
43	RDSDATA		Not used.
44	RDSCLK		Not used.
45	POFF	I	Power stoppage detector input pin
46	SYSIN	I	System code input pin (NAD IN)
47	REMIN	I	Remote control signal input pin
48	IC		Internal connection pin. Connect to the ground terminal.
49	PROTECT	I	Detector input pin of protection circuit. H:On
50	STBY/RECV	O	Stand-by and received indicator output pin
51	STONE/TONE	O	Tone defeat control output pin.
52	VDD		Power supply pin (+5V)
53	STEREO		Not used.
54	SD		Not used.
55	RDSSIG		Not used.
56	RFIN		Not used.
57-70	PVPE	O	Segment output pins. On at the high level.
71	VLOAD	I	Pull-down resistor connection pin of controller and driver of FL.
72-75	PD/PA	O	Segment output pins. On at the high level.
76-80	12G8G	O	Grid control output pin. On at the high level.

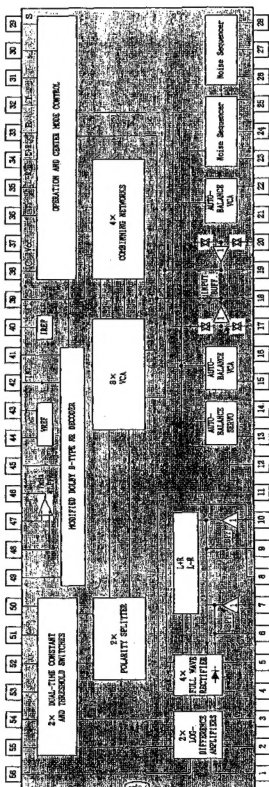
Operation	#15	#16
VOLUME UP	H	L
VOLUME DOWN	L	H
STOP	H	H

Table 1

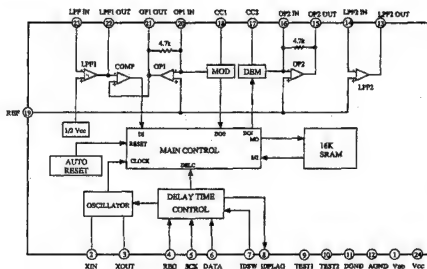
IC BLOCK DIAGRAM AND DESCRIPTIONS

Q602: NJM2177L / M69032P (Dolby Pro Logic)

C-RECT-OUT	1	56	S-RECT-OUT
R-RECT-OUT	2	55	VLR-TC2
L-RECT-OUT	3	54	VLR-TC1
S-RECT-TC	4	53	VCS-TC1
C-RECT-TC	5	52	VCS-TC2
L-BPF-OUT	6	51	VCS-TC3
L-BPF-IN	7	50	VLR-TC3
L-RECT-TC	8	49	NR-TC
R-BPF-OUT	9	48	LPP-NINV-IN LPP non-inversion output
R-BPF-IN	10	47	LPP-INV-IN LPP inversion input
R-RECT-TC	11	46	LPP-OUT LPP output
GND	12	45	NR-WT
AB-GATE	13	44	VREF
AB-HOLD-TC	14	43	VREF
L-AB-IN Auto balance L ch input	15	42	NR-IN NR input
L-AB-OUT Auto balance L ch output	16	41	NR-VCF
L-IN Left channel input	17	40	IREF
L-INBUF-OUT L ch input/buffer output	18	39	S-OUT Surround output before delay processing
R-INBUF-OUT R ch input/buffer output	19	38	C-OUT Center channel output
R-IN Right channel input	20	37	Vcc
R-AB-OUT Auto balance R ch output	21	36	CENTER-MODE
R-AB-IN Auto balance R ch input	22	35	L-R-OUT Submaster output (L-R)
NOISE-CNT-E Signal/Noise selector	23	34	L+R-OUT Adder output (L+R)
NOISE-CNT-A Noise output selector	24	33	R-OUT Right channel output
NOISE-CNT-B Noise output selector	25	32	L-OUT Left channel output
NOISE-REF	26	31	MODE-CNT 2/1A channels switch
NOISE-HPF	27	30	CENTER-CNT Center channel ON/OFF switch
NOISE-LPF	28	29	S-OUT Surround output

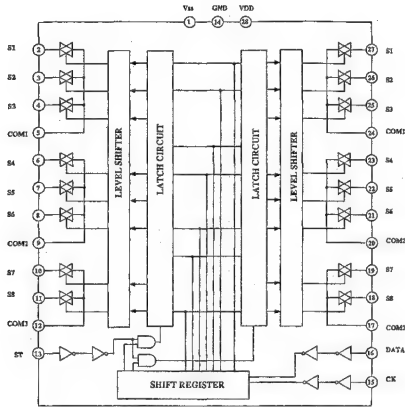


Q651: NJU9701D / M65830P (Digital Delay)

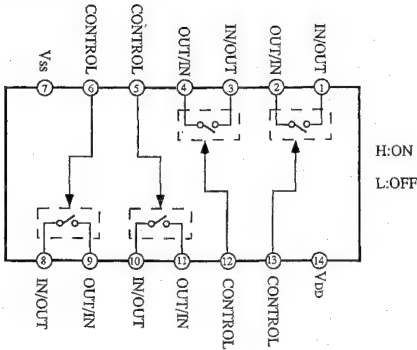


Pin No.	Mark	Function	I/O	Description
1	VDD	Digital power supply	-	
2	XIN	Resonator input	I	Connect the 2MHz ceramic resonator
3	XOUT	Resonator output	O	
4	REQ	Request	I	Data request input
5	SCK	Shift lock	I	Serial data shift clock input
6	DATA	Data	I	Serial data input
7	IDSW	ID switch	I	External input of 4th bit of ID code
8	IDFLAG	ID flag	O	Data input confirmation pulse and serial data output
9	TEST1	Test 1	-	Normal mode when low level
10	TEST2	Test 2	-	Normal mode when low level
11	D.GND	Digital ground	-	
12	A.GND	Analog ground	-	
13	LFP2 OUT	LFP filter 2 output	O	
14	LFP2 IN	LFP filter 2 input	I	
15	OP2 OUT	Operation amp. 2 output	O	
16	OP2 IN	Operation amp. 2 input	I	
17	CC2	Current control 2	-	Demodulation ADM control
18	CC1	Current control 1	-	Modulation ADM control
19	REF	Reference	-	Analog reference voltage=1/2VCC
20	OP1 IN	Operation amp. 1 input	I	
21	OP1 OUT	Operation amp. 1 output	O	
22	LFP1 OUT	LFP filter 1 output	O	
23	LFP1 IN	LFP filter 1 input	I	
24	VCC	Analog power supply	-	

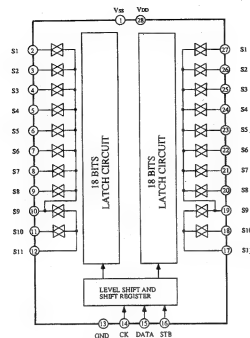
Q606: TC9162N / NJU7311L (Function Switch)



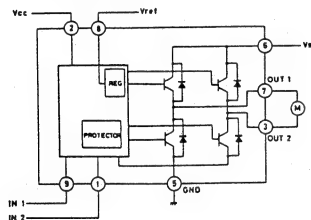
Q253: 4066B (Analog Switch)



Q302: TC9273N-010 (Function Switch)



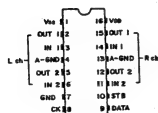
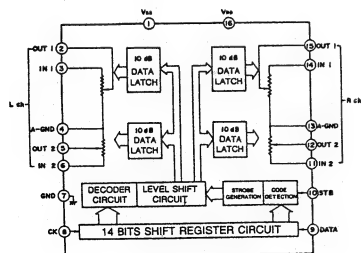
Q481: TA7291S (Volume driver)



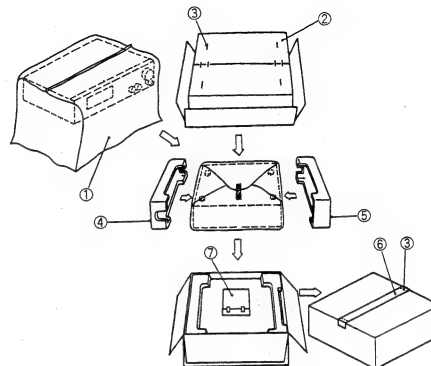
INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	H	H	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW: Counter clockwise direction
CW: Clockwise direction

Q671: TC9213P (Electro Volume)



PACKING VIEW



PACKING PARTS LIST

REF.NO. PART NO.

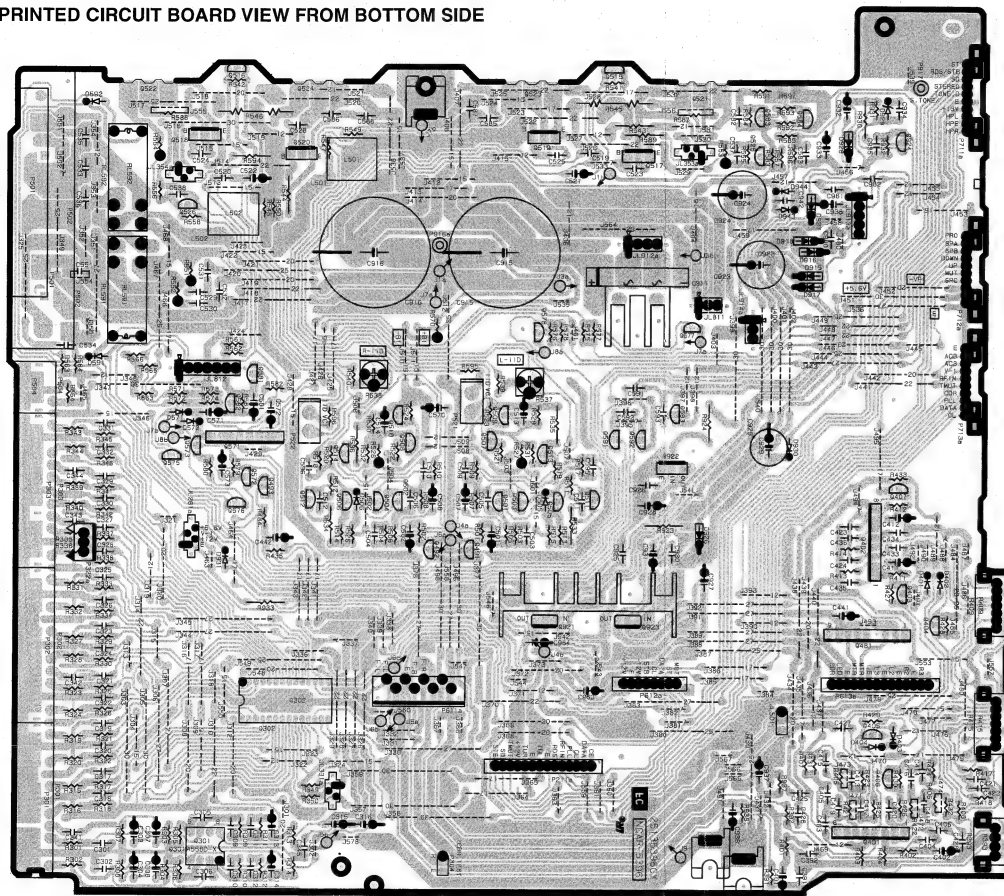
REF.NO.	PART NO.	DESCRIPTION
1	29100034-1Y	Styren bag, 850x650
2	29052900AY	Carton Box
3	282321 or 282301	Staple
4	29091694Y	Pad, L
5	29091695Y	Pad, R
6	29110071 or 29110098	PP tape, W=50

7 Accessory bag ass'y

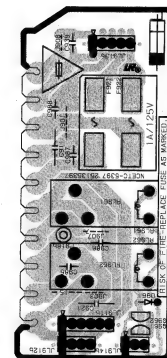
29100097-1Y	Styren bag, 350x250
24140300Y	RC-300S, Remote control transmitter
3010194	UM-3, Two batteries
29342165Y	Instruction manual, U6
2010317Y	Remote control cable, NAD LINK
29355233Y	Instruction sheet <AH>
29365043Y	Warranty card <B1>
29360778Y	Label, Flash <AH>
29361573Y	Label, PE-LD <C>
29361579Y	Label, UL/AC-UL <AH>
29361573Y	Label, PE-LD <C>

NOTE: <AH>: U.S.A., Canadian model only
<B1>: U.K. model only
<B1>: Australian model only
<C>: European model only

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



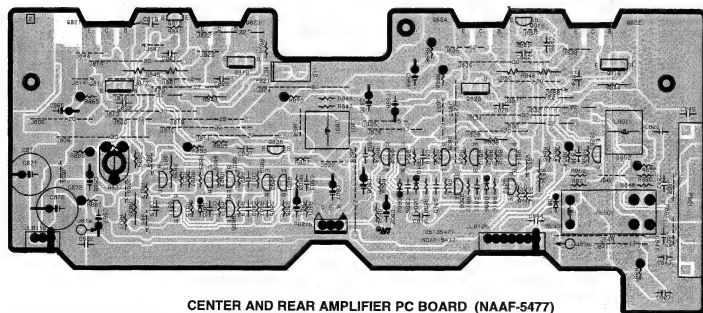
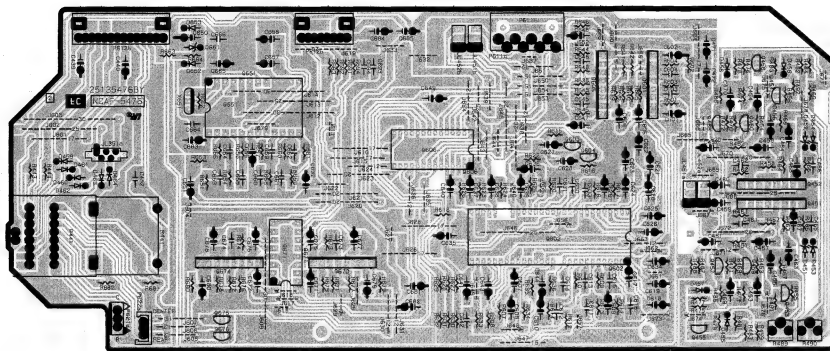
MAIN CIRCUIT PC BOARD (NAAR-5396)



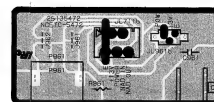
POWER SECONDARY SUPPLY CIRCUIT
PC BOARD (NAETC-5397)

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

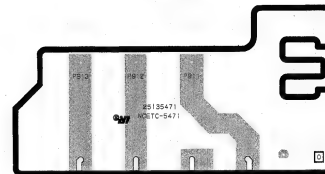
SURROUND CIRCUIT PC BOARD (NAAF-5476)



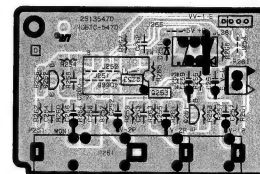
CENTER AND REAR AMPLIFIER PC BOARD (NAAF-5477)



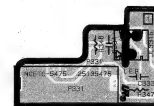
NADLINK TERMINAL PC BOARD
(NAETC-5472)



PRIMARY CIRCUIT PC BOARD
(NAETC-5471)



VIDEO CIRCUIT PC BOARD
(NAETC-5470)

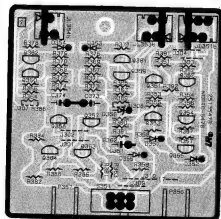
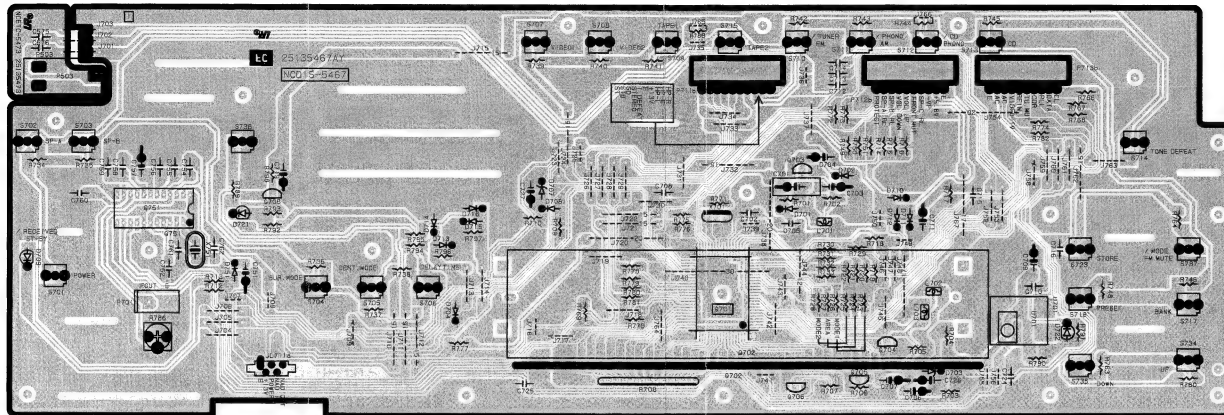


TUNER TERMINAL CIRCUIT PC BOARD
(NAETC-5475)

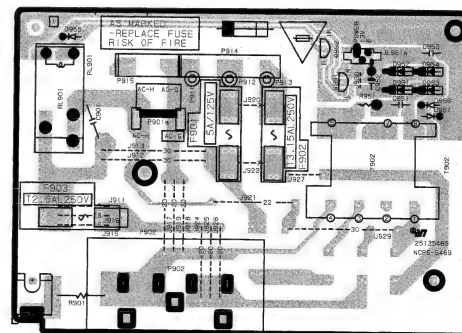
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

HEADPHONE TERMINAL PC BOARD
(NAETC-5473)

DISPLAY CIRCUIT PC BOARD (NADIS-5467)



EDP CIRCUIT PC BOARD (NAETC-5478)



POWER PRIMARY SUPPLY CIRCUIT PC BOARD
(NAPS-5469)

1000000

PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-5396-4/4A)

CIRCUIT NO. PART NO. DESCRIPTION

ICs		
Q301	222502	NJM4558D-X
Q302	22240881	TC9273N-010
Q401, Q402	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q481	22240239	TA7291S
Q571	22240752	NJM4556L
Q921	22278012SNEC	MPC78M12AHF
Q922	222790125	79M12HF
Q923	222780565JRC	NJM78M56FA

Transistors		
Q403-Q406	2211945	2SK246-GR
Q407	2213510	DTA114ES
Q491, Q492	2213631 or	RN1241-A or
	2213632	RN1241-B
Q493	2213510	DTA114ES
Q501-Q504	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q505, Q506	2213354	2SA933S-R
Q507, Q508	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q509, Q510	2213284	2SC1740S-R
Q511, Q512	2211353 or	2SA949-O or
	2211354	2SA949-Y
Q513, Q514	2211635 or	2SC2229-O or
	2211634	2SC2229-Y
Q515, Q516	2213284	2SC1740S-R
Q517, Q518	2203010 or	2SC5171 or
	2202034	2SD1763A-D
Q519, Q520	2203000 or	2SA1930 or
	2202024	2SB1186A-D
Q525, Q526	2211633 or	2SC2229-O or
	2211634	2SC2229-Y
Q572	221282	DTC144ES
Q573	2211164	2SC2120-Y
Q575-Q576	2213631 or	RN1241-A or
	2213632	RN1241-B
Q581, Q582	2211733 or	2SC1845-E or
	2211732	2SC1845-F
Q583	2211792 or	2SA992-F or
	2211793	2SA992-E
Q584	2213284	2SC1740S-R
Q924	2211455	2SA1015-GR
Q591-Q593	2213640	DTC123JS

Diodes		
D401-Q404	223163	1SS133
D505, D506	223163	1SS133
D571, D572	223163	1SS133
D591, D592	223163	1SS133
D911	22380038	RBV602
D915, D918	22380032	1SR139-100
D926, D928	22380032	1SR139-100
D929	224473304	MTZJ33D
D930, D931	223163	1SS133

Coils		
L501-L502	231176S	S-13C

Capacitors		
C303, C304	354741009	10 μ F, 16V, Elect.
C307, C308	354721019	100 μ F, 6.3V, Elect.
C309, C310	374726224	6200pF, \pm 5%, 50V, Plastic
C311, C312	374721824	1800pF, \pm 5%, 50V, Plastic
C313-C316	354741009	10 μ F, 16V, Elect.
C391, C392	374721015	100pF, \pm 10%, 50V, Plastic
C401, C402	354741009	10 μ F, 16V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C411, C412	354741009	10 μ F, 16V, Elect.
C427, C428	374721534	0.015 μ F, \pm 5%, 50V, Plastic
C433, C434	374721534	0.015 μ F, \pm 5%, 50V, Plastic
C435, C436	374721015	100pF, \pm 10%, 50V, Plastic
C441	354721019	100 μ F, 6.3V, Elect.
C442	354780109	1 μ F, 50V, Elect.
C501, C502	354741009	10 μ F, 16V, Elect.
C503, C504	374721015	100pF, \pm 10%, 50V, Plastic
C507, C508	354724719	470 μ F, 6.3V, Elect.
C513, C514	354722219	220 μ F, 6.3V, Elect.
C521, C522	354772209	22 μ F, 63V, Elect.
C529-C532	374721044	0.01 μ F, \pm 5%, 50V, Plastic
C570	354791019	100 μ F, 100V, Elect.
C571-C573	354741009 or	10 μ F, 16V, Elect.
	355741009	10 μ F, 16V, Elect.
C581	354721019	100 μ F, 6.3V, Elect.
C515, C516	3504286	12000 μ F, 63V, Elect.
C923	354761029	1000 μ F, 35V, Elect.
C924	354763319	330 μ F, 35V, Elect.
C927, C928	354741009	10 μ F, 16V, Elect.
C931	354741009	10 μ F, 16V, Elect.
C932, C933	354781019	100 μ F, 50V, Elect.
C936, C937	354741009	10 μ F, 16V, Elect.
C938	354781009	10 μ F, 50V, Elect.
C983, C984	354741009	10 μ F, 16V, Elect.

Resistors		
R393	5104288	N11RLC250KWT20Z, Balance
R409, R415	5104356	N14RLC100KWT20Z, Tone
R527, R528	443524734	47 kohm \pm 5%, 1/2W, Metal oxide
R535, R536	4500095	100 ohm \pm 5%, 1/4W, Metal
R537, R538	5210259	N06HR 2KBC, Trim
R543, R544	4500107	330 ohm \pm 5%, 1/4W, Metal
R545, R546	4000132	RGCS5 0.22 OHMK, Metal plate
R551, R552	453630824	8.2 ohm \pm 5%, 1W, Metal
R553, R554	443523924	3.9 kohm \pm 5%, 1/2W, Metal
R570	443522204	22 ohm \pm 5%, 1/2W, Metal oxide
R587, R588	4500001	BPR2FK 0.10 ohm, Metal plate
R923	4500055	2.2 ohm \pm 5%, 1/4W, Metal
R924	4500069	8.2 ohm \pm 5%, 1/4W, Metal
R930	4500079	22 ohm \pm 5%, 1/4W, Metal
R933	4500087	47 ohm \pm 5%, 1/4W, Metal

Relays		
RL591, RL592	25065339	NRL-2PSA-DC24-046

Pin Jacks		
P301-P303	25045458Y or	NPJ-6PDBL279 or
	25045300Y	NPJ-6PDBL159
P504	25045459Y or	NPJ-1PDBL280 or
	25045302	NPJ-1PDBL161

Plugs		
P304	25055405	NPLG-3P387
P611a	25055678	NPLG-8P634
P612a	25055649	NPLG-8P605
P613a	25055652	NPLG-14P608

Sockets		
P711a-P713a	25051046	NSCT-10P833

Wire holders		
JL261a	25051088	NSCT-4P875
JL331a	25051087	NSCT-3P874
JL333a	25051088	NSCT-4P875
JL354a	25051087	NSCT-3P874
JL811a	25051107	NSCT-3P894
JL812a	25051111	NSCT-7P898
JL912a	25051108	NSCT-4P895

CIRCUIT NO.	PART NO.	DESCRIPTION
IL913a	25051109	NSCT-5P896
IL914a	25051107	NSCT-3P894

P501	Terminals 25060125 or 25060125	NTM-8PDMN058 or NTM-8PDMN058
P521,P522	25060062	2P-5, WW terminal
P916	Crimp ass'y 2069915360ULY	
D911a	Radiators 27160227	RAD-076
Q921a	27160209	RAD-67
	838430107	3TTB+10S(BC), Self-tapping screw
	27141059Y	Plate, GND

POWER SECONDARY SUPPLY CIRCUIT PC BOARD (NAETC-5397-4/4A)

CIRCUIT NO.	PAR NO.	DESCRIPTION
Q961	Transistors 221282	DTC144ES
Q962	2213640	DTC123JS
D961	Diode 223163	1SS133
C987,C988	Capacitors 374731044	0.1 μ F, 100V, Plastic
RL961,RL962	Relays 25065503	NRL-1P10A-DC24-091
F921a,F922a	Fuse holders 25050065	YSH403T
IL912b	Wire holders 25051107	NSCT-4P895
IL913b	25051109	NSCT-5P896
IL914b	25051107	NSCT-3P894
A961	29360398	LABEL(FUSE) <C>

DISPLAY CIRCUIT PC BOARD (NADIS-5467-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
U701	Remote sensor 24130010	HC-312
Q702	FL tube 212143	FIP13QM8
Q701	ICs 22240950	MPD78042AGF-072
Q703	Transistors 221282	DTC144ES
Q704-Q706	2213284	2SC1740S-R
Q708	221282	DTC144ES
D701,Q702	Diodes 223163	1SS133
D703	224470913	MTZJ9.1C
D704	223163	1SS133
D707	224470562	MTZJ5.6B
D708	223163	1SS133
D709	225292D	SEL4310G-D
D710-D716	223163	1SS133
D721	225291D	SEL4910D-D

CIRCUIT NO.	PART NO.	DESCRIPTION
L701-L703	Coils 233454K220	NCH-1452 220K

X701	Ceramic lock 3010163	CST4.19MGW
C701	Capacitors 3000075	0.047F, 5.5V, Super
C702	375524744	0.47 μ F \pm 5%, 50V, Plastic
C703	354721019	100 μ F, 6.3V, Elect.
C704	355780109	1 μ F, 50V, Elect.
C706	355780109	1 μ F, 50V, Elect.
C707	355780109	1 μ F, 50V, Elect.
C709	355721019	100 μ F, 6.3V, Elect.
C711	355721019	100 μ F, 6.3V, Elect.
C726,C727	355741009	10 μ F, 16V, Elect.

S701-S706	Switches 25035652	NPS-111-S604
S708-S712	25035652	NPS-111-S604
S714,S716	25035652	NPS-111-S604
S738	25035652	NPS-111-S604

P711b-P713b	Plugs 25055659	NPLG-10P615
IL711a	Wire holder 25051089	NSCT-5P876
Q702a	Holder 27190937AY	FL

POWER PRIMARY SUPPLY PC BOARD (NAPS-5469-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q951	Transistors 221282	DTC144ES
Q952	2213650	DTD113ZS
D951-D954	Diodes 22380032	1SR139-100
D955	223163	1SS133
T902	Transformers 2300670A	NPT-1111D <AH>
T902	2300671AY	NPT-1111P <C>
C901	Capacitor 3500191	DE7150F-103M AC400V/125V
C952	354742219	220 μ F, 16V, Elect.
R951	Resistor 453530824	8.2 ohm, 1/2W, Metal
P901a	Plug 25055675	NPLG-2P631 <AH>
P902	Socket 25051124	NSCT-6P911 <AH>
P902	25051125	NSCT-4P912 <C>
RL901	Relay 25065483	NRL-1P5A DC12-084
F901a	Fuse holders 25050065	YSH403T <AH>
F902a,F903a	25050065	YSH403T <C>
F902a	25050065	YSH403T

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
JL961a	Wire holder		Q606	22240795 or	NIJ7311L or
	25051087	NSCT-3P874		22240398	TC9162N
	Cover		Q651	22240687 or	NIJ9701D or
	27301216	SB-1925A, Capacitor <C>		22240686	M65830P
	Terminal		Q671	22240266	TC9213P
	25060092	NTM-1S33 <C>	Q673, Q674	22240247 or	BA15218N or
				22240293	NJM4558L-D
VIDEO CIRCUIT PC BOARD (NAETC-5470-1)			Transistors		
CIRCUIT NO.	PART NO.	DESCRIPTION	Q453, Q454	2212524	2SK363-GR
			Q455, Q456	2213284	2SC1740S-R
			Q457, Q458	2213354	2SA933S-R
			Q459, Q460	2213631	RN1241-A
			Q603, Q604	2213631	RN1241-A
			Q675, Q676	2213631	RN1241-A
Q251, Q252	Transistors		Diodes		
	2213284 or	2SC1740S-R or	D451-D454	224470332	MTZJ3.3B
	2212115	2SC2458-GR	D455-D464	223163	1SS133
Q253	222840661	4066B	D651	224470562	MTZJ5.6B
			D652, Q653	223163	1SS133
D251	Diode		Resonator		
	223163	1SS133	X651	3010217	CST2.04MG040, Ceramic
	Capacitors		Capacitors		
C251, C252	354721019	100 μ F, 6.3 V, Elect.	C432, C440	354741009	10 μ F, 16 V, Elect.
C255, C256	354724719	470 μ F, 6.3 V, Elect.	C451, C452	354744709	47 μ F, 16 V, Elect.
C257, C259	354721019	100 μ F, 6.3 V, Elect.	C453-C458	354741019	100 μ F, 16 V, Elect.
	Terminal		C459, C460	354741009	10 μ F, 16 V, Elect.
P251	25045339Y	NPJ-4PDYE190	C461, C462	374721015	100pF, $\pm 10\%$, 50V, Plastic
	Wire trap		C463, C464	354741019	100 μ F, 16 V, Elect.
JL261	25055625	NPLG-4P587	C465, C466	374721015	100pF, $\pm 10\%$, 50V, Plastic
NAD LINK TERMINAL PC BOARD (NAETC-5472-1)			C467, C468	354741009	10 μ F, 16 V, Elect.
CIRCUIT NO.	PART NO.	DESCRIPTION	C469, C470	354780479	4.7 μ F, 50V, Elect.
			C471, C472	354741009	10 μ F, 16 V, Elect.
P961	Jack		C601, C602	354780229	2.2 μ F, 50V, Elect.
	25045395	NPJ-2PDYE221	C605, C606	354741009	10 μ F, 16 V, Elect.
	Wire trap		C607-C610	354781099	0.1 μ F, 50V, Elect.
JL711b	25055626	NPLG-5P588	C613, C614	374724734	0.047 μ F, $\pm 5\%$, 50V, Plastic
	Wire holder		C615, C616	374722234	0.022 μ F, $\pm 5\%$, 50V, Plastic
JL961b	25051087	NSCT-3P874	C617-C620	354781099	0.1 μ F, 50V, Elect.
HEADPHONE TERMINAL PC BOARD (NAETC-5473-1)			C621, C622	354780479	4.7 μ F, 50V, Elect.
CIRCUIT NO.	PART NO.	DESCRIPTION	C623-C627	354782299	0.22 μ F, 50V, Elect.
			C628	354741009	10 μ F, 16 V, Elect.
	Jack		C629	354786899	0.68 μ F, 50V, Elect.
P503	25045255	YKB21-5009	C630	374724734	0.047 μ F, $\pm 5\%$, 50V, Plastic
			C631	374725624	5600pF, $\pm 5\%$, 50V, Plastic
TUNER TERMINAL PC BOARD (NAETC-5475-1/1A)			C632, C634	354780229	2.2 μ F, 50V, Elect.
CIRCUIT NO.	PART NO.	DESCRIPTION	C635	354741019	100 μ F, 16 V, Elect.
			C636-C641	354741009	10 μ F, 16 V, Elect.
	Jacks		C642	374724724	4700pF, $\pm 5\%$, 50V, Plastic
P331	25045463 or	NPJ-2PDWH284 or	C643	354741009	10 μ F, 16 V, Elect.
	25045360	NPJ-2PDWH206	C644	391141007	10 μ F, 16 V, Elect.
	Wire trap		C647-C650	354741009	10 μ F, 16 V, Elect.
JL331b	25055624	NPLG-3P586	C651	354780229	2.2 μ F, 50V, Elect.
			C653	374723924	3900pF, $\pm 5\%$, 50V, Plastic
SURROUND CIRCUIT PC BOARD (NAAP-5476-1)			C655	374726834	0.068 μ F, $\pm 5\%$, 50V, Plastic
CIRCUIT NO.	PART NO.	DESCRIPTION	C656	354744709	47 μ F, 16 V, Elect.
			C657, C658	354781099	0.1 μ F, 50V, Elect.
	ICs		C659	374726834	0.068 μ F, $\pm 5\%$, 50V, Plastic
Q451, Q452	22240250	NJM2068L-D	C660	374725624	5600pF, $\pm 5\%$, 50V, Plastic
Q601	22240247 or	BA15218N or	C661	374724724	4700pF, $\pm 5\%$, 50V, Plastic
	22240293	NJM4558L-D	C663, C665	354721019	100 μ F, 6.3 V, Elect.
Q602	22240683 or	NJM2177L or	C666	375524744	0.47 μ F, $\pm 5\%$, 50V, Plastic
	22240692	M69032P	C671, C672	354780229	2.2 μ F, 50V, Elect.
Q605	22240247 or	BA15218N or	C675, C676	354741009	10 μ F, 16 V, Elect.
	22240293	NJM4558L-D	C677, C678	354780229	2.2 μ F, 50V, Elect.
			C679-C682	354741009	10 μ F, 16 V, Elect.
			C684, C685	354741009	10 μ F, 16 V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R441	5104347	N16RQL100KB725F
R489,R490	5210292	N06HR 10KBE, Trim

	Sockets	
P611b	25051127	NSCT-8P914
P612b	25050983Y	NSCT-8P770
P613b	25050986Y	NSCT-14P773

	Socket ass'y	
P621a	2000802AUL	NSAS-6P758

	Plug	
P622a	25055405	NPLG-3P387

	Wire holder	
JL351a	25051089	NSCT-5P876

CENTER AND REAR AMPLIFIER CIRCUIT PC BOARD (NAAF-5477-1/1A)

CIRCUIT NO. PART NO. DESCRIPTION

	Transistors	
Q801-Q804	2211733 or 2211732	2SC1845-E or 2SC1845-F
Q805,Q806	2213354	2SA933S-R
Q807,Q808	2211733 or 2211732	2SC1845-E or 2SC1845-F
Q809,Q810	2213284	2SC1740S-R
Q811,Q812	2211353	2SA949-O
Q813,Q814	2211633	2SC2229-O
Q815,Q816	2213284	2SC1740S-R
Q817,Q818	2203010	2SC5171
Q819,Q820	2203000	2SA1930
Q825,Q826	2211733 or 2211732	2SC1845-E or 2SC1845-F

	Diodes	
D805,D806	223163	1SS133
D811	223163	1SS133

	Coils	
L801,L802	231176S	S-1.3C

	Capacitors	
C801,C802	354741009	10 μ F, 16V, Elect.
C807	354742219	220 μ F, 16V, Elect.
C808	354744709	47 μ F, 16V, Elect.
C821,C822	374724734	0.047 μ F, \pm 5%, 50V, Plastic
C827,C828	374724734	0.047 μ F, \pm 5%, 50V, Plastic
C865-C870	354700109	1 μ F, 160V, Elect.
C871,C872	354774709	47 μ F, 63V, Elect.

	Resistors	
R826	443524734	47 k ohm, 1/2W, Metal oxide
R833,R834	4500081	27 ohm, 1/4W, Metal
R835,R836	4500095	100 ohm, 1/4W, Metal
R837	5215043	2KBC
R843,R844	4500107	330 ohm, 1/4W, Metal
R845	4000132	0.22 OHMK, Metal plate
R846	4000131	0.22 OHMK, Metal plate
R851,R852	453630824	8.2 ohm, 1W, Metal
R853,R854	443523924	3.9 kohm, 1/2W, Metal oxide
R865,R866	453530224	2.2 ohm, 1/2W, Metal
R867-R870	443522204	22 ohm, 1/2W, Metal oxide

	Plug	
P621b	25055234	NPLG-3P218

	Relay	
RL801	25065485	NRL-2P2A-DC24-086

CIRCUIT NO.	PART NO.	DESCRIPTION
	Wire trap	
JL811b	25050280	NSCT-3P108
JL812b	25050284	NSCT-7P112

	Terminal	
P801	25060234	NTM-6PDML156
P821	25060062	2P-5

EDP CRUCUIT PC BOARD (NAETC-5478-1) CIRCUIT NO. PART NO. DESCRIPTION

	Transistors	
Q351	2213284	2SC1740S-R
Q352	2213354	2SA933S-R
Q353	2213284	2SC1740S-R
Q354,Q355	2213354	2SA933S-R
Q357,Q358	2213284	2SC1740S-R
Q359-Q362	2213354	2SA933S-R
Q363,Q364	2213284	2SC1740S-R

	Diodes	
D351-D355	223163	1SS133
D356	224470512	MIT2J5.1B

	Capacitors	
C351	354741009	10 μ F, 16V, Elect.
C373,C374	354741019	100 μ F, 16V, Elect.

	Slide switch	
S351	25065286Y	NSS-22112

	Screw trim	
P356,P357	25065425	M3

	Wire trap	
JL351b	25055626	NPLG-5P588
JL353b	25055625	NPLG-4P587
JL354b	25055624	NPLG-3P586

CAUTION: Replacement for transistor of mark "*", if necessary,
must be made from the same beta group (HFE) as
the original type.

**NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ
ARE CRITICAL FOR RISK OF FIRE AND
ELECTRIC SHOCK. REPLACE ONLY WITH
PART NUMBER SPECIFIED.**

ADJUSTMENT PROCEDURES

Preparation

1. Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

2. Standard Knob Positions

Master Volume Control	Maximum
Bass Control	Center
Treble Control	Center
Balance Control	Center
Input Selector.....	CD
Tape 2 Monitor	Off
Muting	Off
Tone Defeat.....	Off
Speaker A.....	On
Speaker B.....	Off
Center Mode.....	Wide Band
Delay Time.....	20 ms
Center Level	0 dB
Rear Level	0 dB
Surround Mode	Off
CDR	Off
Soft Clipping	Off

IDLING CURRENT ADJUSTMENT

1. Connect the DC voltmeter to the terminals P521, P522 (VCT and IID) on the main circuit pc board, and P821 on the center and rear amp. pc board.

2. Adjust the trim resistors R537, R538 and R837 so that the indicator of voltmeter becomes $3.25\text{mV} \pm 0.25\text{mV}$.

NOTE: Adjust after switching on for 5 minutes. Set Volume knob to the minimum position.

CDR ADJUSTMENT

1. Set the volume to minimum position.

2. Connect the Dual Channel Voltmeter to test point (P304) on main pc board.



3. Set the function to "CD" position. Input the signal (1kHz-15dBV).

4. Turn "CDR" on, adjust the output level at "L ch" with "R489 on surround pc board" until it reaches "-11dBV".

5. Adjust the output level (both channel) with "R490" to "-11dBV $\pm 1.0\text{dBV}$ " on test point (P304) slowly & Precisely.

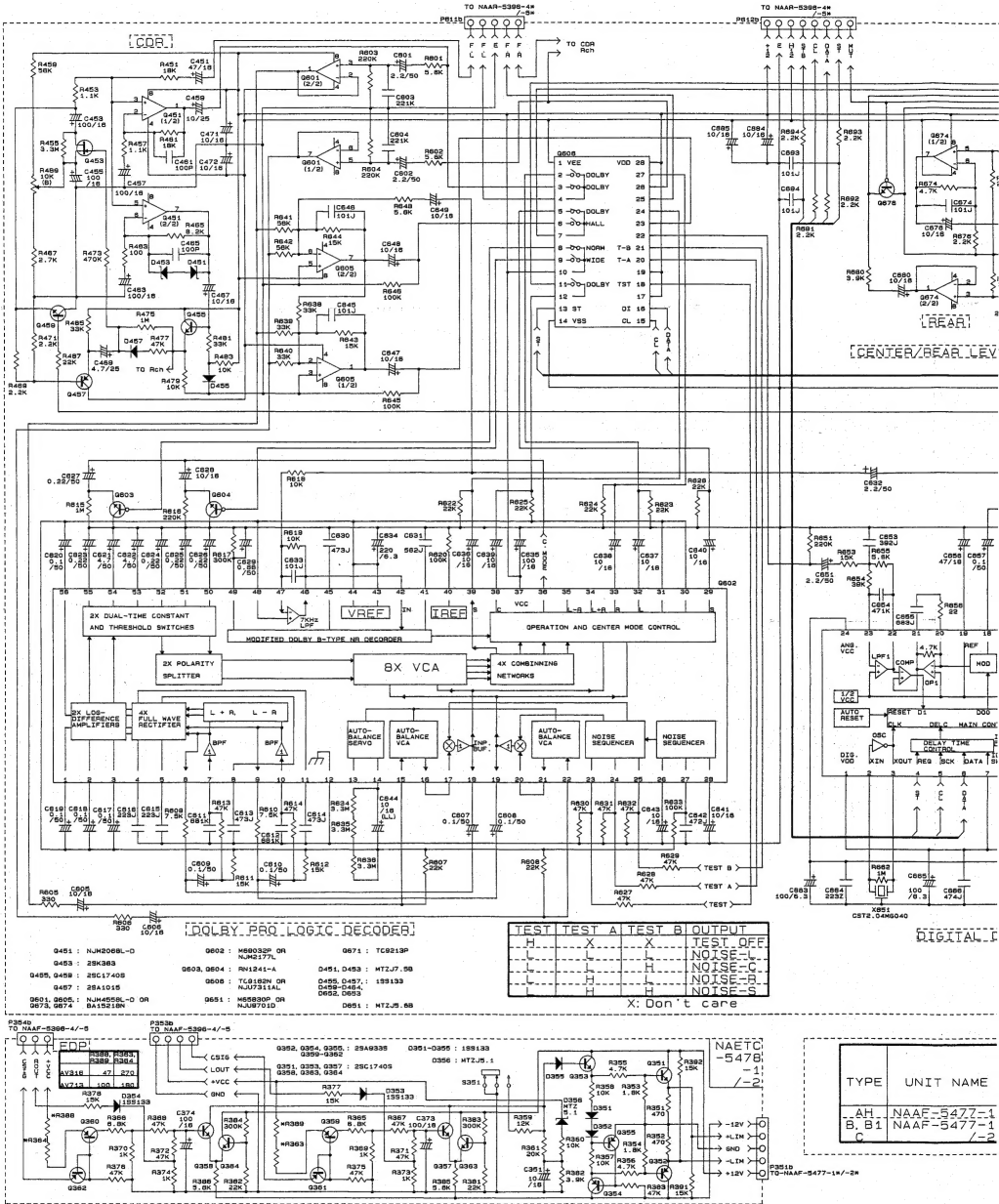
(The difference between "L ch" and "R ch" should be $0 \pm 0.5\text{dB}$.)



THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR SAFETY
REPLACE ONLY WITH PART NUMBER SPECIFIED
(VOLTAGE MEASURED WITH VOLTMETER)  IS DC VOLTAGE. (NO INPUT SIGNAL)

ALL CAPACITORS ARE IN μF UNLESS OTHERWISE NOTED.
(EX) $10^3 = 0.10$, $10^4 = 100$, $10^5 = 1000$, $10^6 = 1,000,000$, $0.10^3 = 10^{-3}$.
ALL RESISTORS ARE IN OHMS UNLESS OTHERWISE NOTED.
RESISTOR VALUES IN MC BOARD ARE THE PRINTING SIDE OF THE PARTS (EX) \square SIDE
RESISTOR IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SCHEMATIC DIAGRAM





A vertical scale with six horizontal tick marks. The labels A, B, C, D, E, and F are positioned to the left of the scale, aligned with each tick mark from top to bottom.

[illegible]

	1	2	3	4	5	6	7
Q253	5.5	5.5	5.5	1.1	0.0	10.1	0.0
Q301	0.0	0.0	0.0	-11.8	0.0	0.0	0.0
Q302	-11.8	0.0	0.0	0.0	0.0	0.0	0.0
	15	16	17	18	19	20	21
Q302	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Q401	0.0	0.0	0.0	-11.8	0.0	0.0	0.0
Q402	0.0	0.0	0.0	-11.8	0.0	0.0	0.0
Q481	4.8	5.6	5.6	0.0	0.0	5.6	0.0
Q482	0.0	0.0	0.0	-11.8	0.0	0.0	0.0
Q521	26.2	0.0	11.8				
Q522	-27.2	0.0	-11.8				
Q523	25.9	0.0	5.6				

